

## CLAIMS

1. A bladeless mixer for agitating and mixing a compound, comprising:  
a driving shaft rotatable about a first vertical axis of rotation;  
5 a motor unit operatively coupled to the driving shaft for rotation of the same;  
a support plate mounted onto the driving shaft and rotatable about the first vertical axis;  
a stationary ring gear coaxial to the support plate, said stationary  
10 ring gear having a portion with an inner surface extending above said support plate; and  
at least one pinion gear rotatably mounted onto the support plate about a second vertical axis of rotation parallel to the first vertical axis of rotation, said at least one pinion gear having an outer surface  
15 complementary to the inner surface of the stationary ring gear, the outer surface of the pinion gear meshing with the inner surface of the stationary ring gear, the pinion gear having a cavity wherein the compound to be agitated and mixed is inserted.
- 20 2. The bladeless mixer according to claim 1, wherein the cavity of each of said at least one pinion gear has a removable lid.
3. The bladeless mixer according to claim 1, wherein the cavity of each of said at least one pinion gear is located at a position off-centered from the second  
25 axis of rotation.
4. The bladeless mixer according to claim 1, wherein the cavity of each of said at least one pinion gear is an upwardly opening cavity wherein a container containing the compound to be agitated and mixed is inserted in a tight-fitting  
30 manner.

5. The bladeless mixer according to claim 4, wherein the upwardly opening cavity of each of said at least one pinion gear is located at a position off-centered from the second vertical axis of rotation.

5         6. The bladeless mixer according to claim 4, further comprising at least one airtight container shaped for tight-fitting into the upwardly opening cavity.

7. The bladeless mixer according to claim 5, further comprising at least one airtight container shaped for tight-fitting into the upwardly opening cavity.

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8. The bladeless mixer according to claim 1, further comprising two additional pinion gears mounted onto the support plate at equidistant positions from each others and from the at least one pinion gear.

15         9. The bladeless mixer according to claim 8, wherein the cavity of each of said at least one pinion gear is an upwardly opening cavity wherein a container containing the compound to be agitated and mixed is inserted in a tight-fitting manner.

20         10. The bladeless mixer according to claim 9, wherein the upwardly opening cavity of each of said at least one pinion gear is located at a position off-centered from the second axis of rotation.

25         11. The bladeless mixer according to claim 9, further comprising at least one airtight container shaped for tight-fitting into the upwardly opening cavity.

12. The bladeless mixer according to claim 10, further comprising at least one airtight container shaped for tight-fitting into the upwardly opening cavity.

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13. A method for agitating and mixing a compound using the bladeless mixer according to claim 1, comprising the steps of:

a) inserting the compound into a container;

5       b) securing the container into the cavity of one of said at least one pinion gear;

c) agitating and mixing the compound in the container by actuating the motor unit for a predetermined time, thereby obtaining a mixed compound; and

10       d) removing the mixed compound from the container.

14. A bladeless mill for producing a powder from a product, comprising:

a driving shaft rotatable about a first vertical axis of rotation;

a motor unit operatively coupled to the driving shaft for rotation of the same;

15       a support plate mounted onto the driving shaft and rotatable about the first vertical axis;

a stationary ring gear coaxial to the support plate, said stationary ring gear having a portion with an inner surface extending above said support plate; and

20       at least one pinion gear rotatably mounted onto the support plate about a second vertical axis of rotation parallel to the first vertical axis of rotation, said at least one pinion gear having an outer surface complementary to the inner surface of the stationary ring gear, the outer surface of the pinion gear meshing with the inner surface of the stationary ring gear, the pinion gear having a cavity wherein the product to be milled is inserted.

25       15. The bladeless mill according to claim 14, wherein said at least one pinion gear comprises a crushing device inserted within its cavity.

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16. The bladeless mill according to claim 14, wherein the cavity of each of said at least one pinion gear has a removable lid.

5 17. The bladeless mill according to claim 14, wherein the cavity of each of said at least one pinion gear is located at a position off-centered from the second vertical axis of rotation.

10 18. The bladeless mill according to claim 14, wherein the cavity of each of said at least one pinion gear is an upwardly opening cavity wherein a container containing the compound to be agitated and mixed is inserted in a tight-fitting manner.

15 19. The bladeless mill according to claim 18, wherein the upwardly opening cavity of each of said at least one pinion gear is located at a position off-centered from the second axis of rotation.

20. The bladeless mill according to claim 18, further comprising at least one airtight container shaped for tight-fitting into the upwardly opening cavity.